Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
IP-Enabled Services	)	**WC Docket No. 04-36**
	)	

MCI COMMENTS

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I. INTRODUCTION AND SUMMARY

Over the last twenty years, the most successful of the Commission's deregulatory initiatives has been the so-called *Computer Inquiry Proceedings.* There the Commission concluded that if it mandated open access to bottleneck transmission services, it would spawn competitive markets in enhanced services that flowed over those transmission services. Perhaps the most significant achievement facilitated by this policy was the growth of Internet Protocol ("IP") networks, and the services and applications making use of IP, which the Commission calls "IP-enabled services." IP is a technology that fits hand-in-glove with the *Computer Inquiry* framework – it is a protocol "intended to be ubiquitous and open to all types of applications, carrying all kinds of content, over all forms of transmission technology, by all sorts of service providers."[1] So long as

[1] Letter from Vinton G. Cerf, Senior Vice President, WorldCom, to The Honorable Donald Evans, Secretary, U.S. Department of Commerce and The Honorable Michael Powell, Chairman, FCC, May 20, 2002 at 2, attachment to letter from Richard S. Whitt, WorldCom, to Marlene H. Dortch, FCC, CC Docket Nos. 02-33, 01-338, 01-337, 98-147, 98-10, 96-98, 95-20; CS Docket No. 02-52; GN Docket No. 00-185, May 21, 2002 (*Cerf Letter to Evans/Powell*).

transmission was made available on a common carrier basis, any and all communications services could develop and prosper on IP platforms in an unregulated marketplace.

The policy was so successful that in 1996 Congress adopted it in amendments to the Communications Act, specifying that the FCC was to continue to impose common carrier regulation on the nation's transmission networks, which it defined as basic "telecommunications," while neither state nor federal regulators were to regulate enhanced "information services." In particular, Congress mandated that the Internet was to remain free from state and federal regulation.

But while Congress and the marketplace have both embraced Commission policy, over the last two years the Commission has turned traitor on itself and threatened to undermine its own greatest success. First, in the pending *Broadband Framework NPRM,* the Commission has proposed to reverse the policy of the *Computer Inquiry Proceedings* and abandon its historical common carrier regulation of bottleneck broadband transmission services. Then, in the *Triennial Review Proceeding,* the Commission denied competitive carriers unbundling rights to bottleneck facilities used by competitors to provide broadband transmission services. Now, in the instant *IP-Enabled Services NPRM (Notice),* the Commission considers regulating the previously unregulated IP applications and services that were the product of the *Computer Inquiry Proceedings.*

These broad policy initiatives are both illegal and unwise. They are illegal because Congress has mandated regulation of bottleneck transmission networks that the Commission proposes to deregulate, and it has mandated the deregulation of IP-enabled services that the Commission perversely proposes to regulate. These policy initiatives are unwise because the regulatory paradigm of the *Computer Inquiry Proceedings* is

fundamentally sound. As long as the carriers that own the broadband transmission networks can exercise market power because transmission is not yet available on a competitive basis, they will exercise that market power by controlling downstream markets that depend on those transmission services. That, in turn, will result in calls for regulation of those downstream markets. But if the transmission markets are subjected to common carrier regulation, then technologies like IP will foster competitive markets in applications that ride on those common carrier services. The result will be less regulation, more innovation, more output, and lower prices. The Commission should re-learn that lesson and reverse course.

In these Comments MCI shows that when considering economic regulation of IP-enabled services, the Commission should embrace the *Computer Inquiry* rules and the technology of IP. It should analyze the need for regulation, and the appropriate object of regulation, through what has been called a "layers model." That model distinguishes between the physical transmission media, the network routing and addressing functions performed by IP and similar technologies, the applications that "ride" on these lower layers, and, finally, the content that is carried through these applications. We show that the physical access layer is not competitive and needs to be regulated, but that with appropriate regulation of that layer, the other layers are competitive and need not be subject to economic regulation. In particular, there is no need for economic regulation of IP-enabled services.

Next we show that in any event Congress gave the FCC jurisdiction to regulate the physical layer, but gave it no general jurisdiction over enhanced services or IP-enabled services. We show that these services are inherently federal, but Congress as a

general matter has concluded that they are not to be subject to regulation by either state or federal authorities. The FCC does have limited jurisdiction under Title I of the Communications Act, but that jurisdiction is limited to those actions necessary to preserve its jurisdiction expressly granted in the other titles of the Communications Act. Titles II-VI do not limit broad authority given the Commission in Title I; instead, the Commission's authority must in the end be derived directly from Titles II-VI.

We next turn to non-economic regulation, which raises different concerns and policy implications than the economic regulation that is the principal object of the Commission's regulatory authority. We suggest that when an IP-enabled service is marketed as a substitute for a traditional telecommunications service, understood by consumers to be a substitute, provides access to POTS services offered through the Public Switched Telephone Network, and makes use of numbers obtained through the North American Numbering Plan, certain forms of regulation of that service are within the Commission's ancillary jurisdiction. While certain IP voice applications fall within this category and so may be regulated by the Commission, other IP voice applications do not.

While the Commission thus has limited authority to regulate certain IP voice applications, it is a separate question whether it is good policy to do so. In the second half of MCI's comments we address specific forms of non-economic regulation.

First MCI addresses emergency services regulation, and describes the many advantages IP technology brings to emergency services. Because these applications are just developing, because there is reason to believe that consumer demand will drive that development, and because IP voice applications cannot meet the E911 requirements of existing local regulation, MCI demonstrates that the FCC should not at this time adopt

detailed 911 regulations for IP-based services, but instead should require those IP voice application providers within its jurisdiction to inform consumers of the emergency services offered with their service, and participate in industry forums to assure itself that progress is being made in developing uniform IP 911 standards.

Turning to disability access, MCI demonstrates that here too market forces are driving industry solutions that are likely to result in richer and more comprehensive disability access than now required on the PSTN. That being the case, it is too early to impose detailed disability regulations. Instead the Commission should continue to participate in standard setting bodies and work with the industry to insure that standards for CPE such as SIP phones are developed that provide adequate access for disabled consumers.

Finally MCI shows that the growth of IP-enabled services threatens existing regimes for intercarrier compensation, universal service and international settlements. In each case, the appropriate solution is reform of the current regimes, which are irrational and lead to uneconomic behavior by all market participants. To the extent IP-enabled services increase the pressure for needed reform, so much the better. Intercarrier compensation should be on a bill-and-keep basis, and should be directed at telecommunications carriers, not applications providers. Universal service too should be directed at the network providers, since it is the cost of providing network connections to rural areas that generate the need for this subsidy. And to the extent that IP-enabled services place downward pressure on international settlement rates, that too is a positive development, and not one that should be tampered with by regulating these services.

II. THE COMMISSION SHOULD ANALYZE IP-ENABLED SERVICES USING THE MCI LAYERS MODEL

The Commission asks how, if at all, it should differentiate among various IP-enabled services to ensure that any regulations applied to such services are limited to those cases in which they are appropriate.[2] The Commission suggests, in particular, that it may be necessary to distinguish services that might be viewed as replacements for traditional voice telephony (and which thus may raise social policy concerns) from other services.[3]

Although the partial substitutability of some IP-enabled services with traditional voice telephony raises important issues, the Commission's examination of IP-enabled services should begin with a broader and more flexible approach. As MCI has previously explained,[4] the Commission should draw on the principles of network protocol design and the work of a growing number of scholars to analyze the public policy issues associated with IP-enabled services using a layers model.

A. The Layers Approach to Public Policy Analysis Reflects Fundamental Principles of IP Network Engineering

In legacy networks, service offerings are tightly coupled with the underlying transmission technology. The legacy telephone network is designed to provide ordinary voice telephone service; the legacy cable networks are designed to distribute video

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[2] *Notice* ¶ 35.
[3] *Id*. ¶ 36.
[4] *See Adapting FCC Policymaking to the Network Layers Model: A Roadmap for FCC Action*, attachment to letter from Gil M. Strobel, Lawler, Metzger & Milkman to Marlene H. Dortch, WC Docket No. 04-36; CC Docket Nos. 02-33, 01-337, 01-92, 96-45, March 29, 2004 (*Layers Roadmap ex parte*); s*ee also* Richard S. Whitt, Senior Director for Global Policy and Planning, MCI, "A Horizontal Leap Forward: Formulating a New Public Policy Framework Based on the Network Layers Model" (December 2003) (*2003 Layers Paper)*, *available at* http://global.mci.com/about/publicpolicy/presentations/horizontallayerswhitepaper.pdf; *Notice* ¶ 37 ("In recent years, several observers have urged reliance on a 'layered' model to address VoIP and other areas of regulatory concern.") (citing Kevin Werbach, *A Layered Model for Internet Policy* (Sept. 1, 2000).

signals; and wireless networks are optimized for voice telephony or radio or television broadcasting.

IP networks revolutionize communications by breaking the link between services and transmission technology. With the development and proliferation of IP, multiple services can now be provided over each transmission technology, and services can now be provided over multiple media or networks. As Vint Cerf has explained, the IP protocol "was intended to be ubiquitous and open to all types of applications, carrying all kinds of content, over all forms of transmission technology, by all sorts of service providers."[5]

The convergence of services and transmission technologies enabled by IP presents a fundamental challenge to the existing regulatory system, which assumes that particular services are carried over particular transmission technologies. Today, voice services provided over wireline networks are regulated under Title II; voice services provided over wireless networks are regulated under Title III; video and audio broadcasting is regulated under separate provisions of Title III; and video provided over cable television networks is regulated under Title VI. This vertically-oriented approach – regulating based on rigid service/technology combinations – has been referred to as the "silo model" of regulation.

The silo model poses challenges in an all-encompassing IP world. Attempts to apply separate regulatory approaches based on transmission technology are doomed to fail, because IP runs over all transmission technologies. Similarly, the legacy distinctions between services largely lose their meaning, because IP networks can carry all types of services and can carry new services that combine elements from several previously

[5] *Cerf Letter to Evans/Powell.*

distinct legacy services. Under these circumstances, forcing legacy regulations on IP services and networks stifles the creativity and innovation that is the essence of the Internet. Outmoded regulations tend to impose unnecessary legal restrictions, as well as overlook significant market concentration issues.

For that reason, policymakers should move towards a new legal framework that reflects the network engineering concepts that underlie IP-based networks. Specifically, policymakers should adopt a framework that takes into account the design feature of IP networks that enables the convergence of services and transmission media: the "layered" approach to protocol design. Under that design philosophy, networking functions are allocated among well-defined modules or "layers," each of which builds on the functions provided by the layer below. In the bottom layer of the protocol "stack" are the functions associated with the actual transmission of bits over the physical medium; that physical layer is relied on by the middle layers that contain the functions associated with organizing the bits in to packets, delivering those packets to the right destination, and managing the flow of such packets; and those middle layers are relied on by the top layers that use the information in the packets in applications such as voice transmission or email.

Because the layered approach to network design breaks network functions into modules, and because the interfaces between the modules are well-defined and standardized, engineers can readily create new products and services by implementing modifications at the appropriate layer of the protocol stack, without the need to rework the entire set of protocols to accommodate that application. Similarly, engineers can introduce new transmission technologies – wireline or wireless, broadband or

narrowband – without completely redesigning the network or existing applications. Those disparate services and transmission technologies are unified by the IP protocol in the middle of the protocol stack, riding a range of transport networks below and supporting a wide range of applications above.[6]

As discussed in what follows, this approach to network protocol design has important regulatory consequences, for it permits competitive markets to develop in applications that are currently regulated. Earlier transmission technologies were not as modular, standardized and open as IP technology. The development of IP-based services therefore allows the Commission to advance and extend the deregulatory agenda of the *Computer Inquiry* proceedings and the 1996 Act.

A layers framework for public policy analysis tracks the architectural model of IP networks by conceptualizing networks as a stack of layers, each of which corresponds to different network functions that may be offered in relatively distinct markets with distinct public policy issues. By focusing on network functions, rather than on the nature of the underlying transmission medium, the layered approach avoids unsupportable legacy distinctions between services, networks and industries. The layered approach also recognizes the delinking of services from transmission medium by allowing the public policy issues associated with applications and content to be evaluated separately from the public policy issues associated with the underlying physical networks.

B. The MCI Layers Model

In the MCI Layers Model, networks are conceptualized as four functional layers: the physical layer, with separate access and transport components, the logical network

[6] *Layers Roadmap ex parte* at 3.

layer, the applications layer, and the content layer.[7] The physical layer contains the transmission functions performed by copper, fiber, coaxial cable, wireless, satellite or other transmission technology.[8] The logical network layer contains the network routing and addressing functions performed by IP. The application layer contains applications that use IP data such as email and web browsing. And the content layer contains text, speech, images, and video.

As the layers analytical approach makes clear, voice is just another application of IP-based networks. Because the audio "bits" that make up a voice signal ride on top of the IP protocol, just like data bits or video bits or any other type of information, the model assigns voice applications to the same layer as email, web browsing or other applications.

In addition to the four-layer framework, MCI's layers model embraces the following principles:[9]

Do not regulate where it is unnecessary Policy makers should impose economic regulation only with respect to layer(s) where providers have market power, leaving the remaining layers free from unnecessary regulatory constraints. This approach is analogous to the approach taken by the Commission in *Computer II*, where the Commission regulated only with respect to basic services but not the enhanced services that ride on those basic services.

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[7] *See Layers Roadmap ex parte* at 5.
[8] For purposes of these comments, MCI has further simplified its layers model to include transmission services, including special access and DSL, in the physical layer because the provisioning of such services is today so closely connected to the physical facilities over which they are provided. One advantage of this simplification is that it allows the discussion of the logical layer to focus on the IP functions and highlight the fact that IP functions are between the higher layers (*i.e.,* applications and content) that ride on IP and the lower, physical layer on which the IP protocol rides.
[9] *See Layers Roadmap ex parte* at 7.

Assess market power separately for each layer: A layers-based approach to policymaking will assist policy makers in developing narrowly-tailored solutions that focus on the layer or layers implicated in the specific issues under review. For instance, certain firms continue to exercise bottleneck control over the last-mile physical links needed for access to end-user customers. A layers-based approach would allow the Commission to target economic regulations to the access portion of the physical layer, while refraining from regulating the applications and content.

Do not allow a company with market power at a lower layer to leverage that power to harm competition in markets that involve upper layers. The layers-based model emphasizes that IP-enabled applications and content "ride" on the lower physical and logical/network layers. Thus, in an IP-based environment, the proliferation and survival of innovative applications, services, and content depend on the ability of potential providers to obtain access to lower layers, including the physical layer. If a firm enjoys market power at the lower layers, the Commission should safeguard against the potential for that carrier to leverage its market power to harm competition in one or more higher layers (e.g., the application and/or content layers).

To that end, the Commission should ***keep the interfaces between the upper and lower layers open where the exercise of market power at the lower layers would otherwise keep such interfaces closed***. As discussed above, a key aspect of IP networks' modular architecture is the standardized interfaces between layers. Similarly, in the public policy arena, it is critical that the interfaces between layers remain open so that firms do not restrict access to the layers they control. Open interfaces and bans on

discrimination help prevent companies that have control of lower layers from hindering or preventing competition for services or applications at higher layers.

This principle is analogous to the Commission's decisions in the *Computer Inquiries*. In *Computer II,* the Commission recognized that "enhanced services are dependent upon the common carrier offering of basic services. . . ."[10] For that reason, the Commission found, it was necessary to "provide[] a structural constraint on the potential for abuse of the parent's market power through controlling access to and use of the underlying transmission facilities in a discriminatory and anticompetitive manner."[11] In order to open the interface between basic and enhanced services, the Commission required facilities-based providers of enhanced services to obtain transmission capacity pursuant to tariff, at the same prices, terms, and conditions offered to unaffiliated providers.[12]

Finally, the layers principle also should inform judgments about the need and content of non-economic regulation as well. As we show in what follows, some social policy goals are more rationally implemented by regulating providers at a particular layer, especially when keeping in mind the legislative directive to leave the Internet as unregulated as possible. And even where it may make sense in narrow instances to regulate providers who offer services that are substitutes for traditional telephone service, that regulation as well needs to be sensitive to the architectural structure of IP networks.

[10] *Computer II* ¶ 231.
[11] *Computer II* ¶ 229.
[12] *Computer II* ¶¶ 229-230.

III. ECONOMIC REGULATION OF THE PHYSICAL ACCESS LAYER IS ESSENTIAL TO THE FUTURE OF IP-ENABLED SERVICES

As the Commission acknowledges in the Notice, the market for IP-enabled services is competitive and has an unparalleled record of innovation. However, a competitive market for IP-enabled services cannot simply be assumed. Rather, because IP-enabled services "ride on" physical access layer functions that are not offered in a competitive market, the layers model shows that continued application of rigorous safeguards and economic regulation is necessary to ensure that firms do not leverage their physical access layer market power into the higher layers.

A. The Physical Access Layer is Not Competitive

With only rare exceptions, there are at most two physical layer paths into the home – one controlled by the incumbent LEC and the other controlled by the cable companies. But even these providers do not offer ubiquitous coverage: narrowband services are typically available only over the incumbent LEC's wire; and only about half of American consumers currently can choose between the DSL services provided by the incumbent LECs and the cable modem services provided by the cable companies for broadband access.[13] Nor are cable and wireline broadband services perfect substitutes for each other – cable provides greater bandwidth, often comes bundled with video services, and is deployed almost exclusively in residential markets. At best, then, consumers currently face a limited telephone/cable duopoly, particularly with regard to the broadband access platforms that end users will utilize in order to reach voice applications and other IP-based applications and services.

[13] BOC UNE Fact Report IV-18-IV-19.

The prospects for expanding the number of suppliers of broadband access platforms to the home are uncertain at best. First, satellite and fixed wireless systems – which are sometimes touted by the incumbent LECs as competitive alternatives – lack the technical characteristics that would enable them to offer a viable third or fourth alternative to DSL and cable modems. At least in the near- and medium-term, satellite and fixed wireless systems will, at most, support niche services or limited geographies. Similarly, broadband over powerline (BPL) shows promise, but BPL is still very much in its infancy. Significant issues, such as interference with wireless and wireline systems and lack of standards, need to be addressed before BPL sees widespread deployment.[14] Whatever the longer term potential for these modalities, the Commission should base its regulations on what the technologies offer today, and not on speculation about what might come to pass in the future.

Second, it is unlikely that competitive DSL providers will offer broad-based alternatives to the incumbent LECs and cable companies. The competitive DSL providers currently control only about 5 percent of DSL lines in service,[15] and the Commission's decision in the *Triennial Review Order* to withhold hybrid loops from competitors – despite finding that CLECs were impaired without access to those loops -- further limits those providers' prospects.[16] The Commission's decision to phase out "line sharing" also curtails heretofore successful business models employed by some data

[14] *See*, *e.g.,* Joint Comments of MCI, ALTS, and Covad on Broadband Power Line Notice of Inquiry, *Inquiry Regarding Carrier Current Systems, Including Broadband Over Power Line Systems*, ET Docket No. 03-104, at 1-2 (FCC filed August 20, 2003): s*ee also* Comments of Progress Energy, Inc., at 8; Comments of the Public Safety Wireless Network at 5.
[15] *High Speed Services for Internet Access,* Industry Analysis and Technology Division, Wireline Competition Bureau, Federal Communications Commission, December 2003 (*706 Status Report*) at Table 5.
[16] *Triennial Review Order* ¶ 288.

CLECs.[17] Whatever the merits of the decisions to withhold access to hybrid loops and to phase out line sharing – and MCI continues to believe that those issues were wrongly decided -- the Commission must acknowledge that those decisions limited competition in the provision of broadband services.

Alternatives in the physical access layer are even more limited for enterprise customers. The vast majority of business customer locations can obtain their IP-enabled services only over incumbent LEC special access services. And, as with mass market customers, there are only limited prospects for expanding the number of locations with competitive alternatives. Not only are there "extremely high economic and operational barriers in deploying DS1 loops,"[18] which are the primary means by which enterprise customers obtain IP-enabled services, but the incumbent LECs have erected other roadblocks as well. For example, the incumbent LECs are undermining facilities-based special access competition by engaging in an array of exclusionary pricing tactics that are designed to limit competitive LECs' ability to win customers and gain economies of scale. And, on the limited routes where competitive alternatives are available, the incumbent LECs have placed artificial provisioning limitations on "grooming" from their special access services to facilities-based alternatives.

In sum, in both residential and enterprise markets, the owners of the physical broadband networks continue to exercise substantial market power at the physical access layer.

[17] *Id.* ¶¶ 255-263.
[18] *Id.* ¶ 325.

B. Open Physical Access Layer Interfaces are Essential

In light of the limited number of physical access layer alternatives, the principles of layers-based regulation require the Commission to continue applying tailored economic regulation at that layer. In particular, the future of IP-enabled services depends on Commission action to ensure that the interface between the physical access layer and the upper layers remains open, and that the prices, terms, and conditions for physical access layer services are just, reasonable, and nondiscriminatory.

The potential that firms with physical access layer market power could leverage their market power into the higher layers represents an enormous risk.[19] Leveraging of market power into the higher layers would, for example, slow the pace of innovation in IP-enabled services. Indeed, it is unlikely that the development of the Internet, and subsequent rapid innovation, would have occurred had the Commission's *Computer II* rules not ensured that the underlying transmission facilities were available to networking researchers and pioneering ISPs.[20] The incumbent LECs would not have conceived of or deployed innovative IP-enabled services on their own: it is not too long ago that the incumbent LECs were touting their own closed information gateways, or the French Minitel system, as the model for the future.

The potential leveraging of market power into the higher layers also poses risks to the largely unregulated status of IP-enabled applications and content. If the providers of

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[19] *See* Remarks of Remarks of Michael K. Powell Chairman, Federal Communications Commission at the Silicon Flatirons Symposium on "The Digital Broadband Migration: Toward a Regulatory Regime for the Internet Age" University of Colorado School of Law Boulder, Colorado, February 8, 2004, available at http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-243556A1.doc.

[20] Vint Cerf has written that, because of the *Computer Inquiry* rules, "literally thousands of players were free to unleash their creative, innovative, and inspired product service ideas in the competitive information services marketplace, without artificial barriers erected by the local telephone companies. I am firmly convinced that the Commission's foresight in this area contributed strongly towards the commercial introduction, rise, and incredible success of the Internet." *Cerf Letter to Evans/Powell* at 2.

physical layer services were able to leverage their market power in the physical layer to the provision of IP-enabled applications and content, there would inevitably be calls for greater regulation of those applications and content. Indeed, there have already been calls for the regulation of cable modem-based Internet access services, based on claims that such service operators could unreasonably restrict access to certain applications or content.[21]

Far from being overly regulatory, as the incumbent LECs claim, the *Computer II* rules are in fact the cornerstone of an effective deregulatory regime, helping to ensure that "Internet applications remain insulated from unnecessary and harmful regulation at both the federal and state levels."[22] It is for that reason that one of the principles of MCI's layers model is that it is best to regulate at the layer that is the source of the problem, which, in the case of market power issues, is the physical layer. The Commission has previously embraced that principle, stating that "[l]imiting carrier regulation to those companies that provide the underlying transport *ensures that regulation is minimized* and is targeted to markets where full competition has not emerged."[23]

Broadband Framework NPRM:

Because there has been no material change in the factual predicate underlying the *Computer II* rules – the incumbent LECs' control over bottleneck facilities – the Commission should retain those rules or, at a minimum, adopt streamlined new rules

[21] *See* letter from Timothy Wu and Lawrence Lessig to Marlene H. Dortch, FCC, CS Docket No. 02-52, August 22, 2003.
[22] *Pulver* ¶ 1.
[23] *Stevens Report* ¶ 95.

designed to achieve similar goals.[24] In particular, as MCI has previously shown in its comments on the *Broadband Framework NPRM*,[25] the Commission should not adopt its proposal to eliminate the *Computer II* unbundling obligations for broadband services.

The Commission's proposal to eliminate the *Computer II* obligations for broadband IP-enabled applications ignores the engineering of IP networks and conflates two very different markets. From an engineering perspective, there is no merit to incumbent LEC claims that DSL transmission and IP networks are best offered on an integrated basis. To the contrary, the IP protocol designers' primary objective was to ensure that IP could operate over a wide range of transmission technologies; inherently, IP need *not* to be deployed on an integrated basis with DSL or any other underlying transmission technology. As Vint Cerf has explained, "this [DSL] transmission path should not in any way be confused with one of the more common applications of DSL: Internet access."[26]

Not only is there no necessary technical linkage between DSL and IP-based services, but they are offered in very different markets. With respect to IP-based services, there is a long record of entry, competition, and innovation by multiple providers. The same is not true of physical access layer services, however. The prospect for robust competition among providers of physical layer access services is limited by the massive investments required to build last mile facilities on a ubiquitous basis.

Additionally, Qwest, in the *Broadband Framework Proceeding,* and SBC in its recent request for a Declaratory Ruling on IP Platform Services, have argued that the

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[24] *See*, *e.g.,* letter from Linda L. Kent, Lampert & O'Connor P.C., to Marlene H. Dorth, FCC, CC Docket No. 02-33, August 21, 2003.
[25] Joint Comments of WorldCom, CompTel and ALTS, CC Docket No. 02-33, May 3, 2002.
[26] *Cerf Letter to Evans/Powell* at 3.

Act's unbundling regime has made any further regulation of transmission facilities unnecessary. But the Commission in the *Triennial Review Order* has declined to require unbundling of the transmission facilities that are necessary to provide broadband services, including IP-based broadband services. It has done so even though competitors are economically unable to obtain alternative transmission facilities. To eliminate the *Computer Inquiry* rules based on unbundling rights that do not exist would be the height of arbitrary and irrational action, and would undermine the competitive market in IP-based applications that the Commission is seeking to promote.

Special Access Pricing

Incumbent LEC special access services are widely used by operators of IP networks, and are the primary means by which IP-based services are provided to enterprise customers. The explosion in incumbent LEC special access revenues over the past several years is largely attributable to the explosion in demand for data services generally, and IP-based services in particular.

Unfortunately, the incumbent LECs' special access prices represent a significant tax on the Internet. The incumbent LECs are earning far above the authorized rate of return on their special access services, and charging prices far above any reasonable measure of economic cost. Worse still, since incumbent LECs compete in the markets that rely exclusively on their own special access facilities, the Commission's refusal to impose a cost-based pricing regime on these facilities threatens to cause a price squeeze that will undermine the nascent competitive market in IP-based applications.

To limit special access prices' impact on competition among IP-based service providers, the Commission must take immediate action to bring incumbent LEC special

access prices under control. The Commission should, in particular, revisit its pricing flexibility rules, reimpose a substantial X-factor on special access once the CALLS rules expire on June 30th, 2005, and reinitialize special access prices at reasonable levels. The only other alternative would be a rule of structural separation that would keep the incumbent LECs out of applications markets they could otherwise quickly monopolize through abusive special access pricing.

IV. THE COMMISSION SHOULD MAINTAIN ITS POLICY OF NONREGULATION FOR IP-ENABLED SERVICES

As the Commission discusses in the Notice, because it has consistently subjected transmission networks to Title II common carrier regulation, the Commission has been able to pursue a policy of minimal regulation with respect to IP-enabled services. In the 1998 *Stevens Report*, the Commission explained that "as long as the underlying market for provision of transmission facilities is competitive or is subject to sufficient pro-competitive safeguards, we see no need to regulate the enhanced functionalities that can be built on top of those facilities."[27]

The conclusion that economic regulation is unnecessary is equally valid for IP-based voice services. As discussed above, the MCI layers model shows that (1) voice is just another application; and (2) the decision to subject voice or any other application to economic regulation should be largely based on the presence or absence of market power, not on whether an application is arguably similar to traditionally-regulated services. Because the evidence shows that the market for IP-based applications can be competitive -- provided that the underlying transmission services are made available to all providers

[27] *Stevens Report* ¶ 95.

of such applications – the conclusion that economic regulation is unnecessary applies just as strongly to IP-based voice services as it does to other IP-based applications.

In any event, a regulatory regime based on whether or not an IP-based service constituted a "voice" service would require regulators to engage in increasingly arbitrary line-drawing, and would thus not be sustainable. As the Commission explains in the Notice, distinctions between IP-based voice services and other IP-based applications are becoming more and more difficult to draw. In particular, new services "which may integrate voice, video, and data capabilities" are rapidly being introduced, making it "increasingly difficult, if not impossible," to distinguish 'voice' service from 'data service'. . . ." [28]

A. IP-Enabled Services, including Voice Applications, are Interstate Information Services

Not only is it the correct policy for the Commission to refrain from applying common carrier regulations to IP-enabled services, but the Commission has no authority under the Act to impose such regulations.

First, IP-enabled services are properly classified as information services, and thus cannot be subjected to common carrier regulation. IP-enabled services are properly classified as information services because networks based on IP inherently offer end users "a capability for generating, acquiring, sorting, transforming, processing, retrieving, utilizing or making available information via telecommunications."[29]

Moreover, Congress has declared that "[i]t is the policy of the United States . . . to preserve the vibrant and competitive free market that presently exists for the Internet and

[28] *Notice* ¶ 16.
[29] 47 U.S.C. § 153(20).

other interactive computer services, unfettered by Federal or State regulation."[30] That policy reflects a finding by Congress that "[t]he Internet and other interactive computer services have flourished, to the benefit of all Americans, with a minimum of government regulation."[31]

The conclusion that IP-enabled services are information services applies to all IP-based applications, including those that may include a voice component. Although certain aspects of some voice applications and content are similar to traditional voice telecommunications services, the broader capabilities of IP-based voice applications render them information services. As the Commission describes in the Notice, IP-based voice applications already include, or will soon include, information retrieval and processing capabilities.[32] More specifically, IP-based voice applications generally include many, if not all, of the advanced functions that contributed to the Commission's finding that Pulver's Free World Dialup (FWD) is an information service.[33]

Under Commission precedent, the Commission cannot single out the voice component of an information service for separate classification as a telecommunications service, even if that voice component may superficially resemble traditional voice services. As the Commission found in the 1998 *Stevens Report*, ISPs "do not offer subscribers separate services – electronic mail, Web browsing, and others – that should be deemed to have separate legal status."[34] Rather, IP-based services constitute

[30] 47 U.S.C. § 230(b).
[31] 47 U.S.C. § 230(a)(4).
[32] *Notice* ¶ 18.
[33] *Pulver* ¶¶ 11-12.
[34] *Stevens Report* ¶ 75.

information services "regardless of whether subscribers use all of the functions provided as part of the service, such as e-mail and hosting . . . ."[35]

Finally, many, if not all, IP-based voice services are properly classified as information services for an independent reason: they typically include a net protocol conversion capability.[36] Such protocol conversion would occur whenever traffic is exchanged between an IP network and the traditional circuit-switched PSTN.

The states also have no authority to impose regulations inconsistent with the Commission's policy of nonregulation with respect to such services. As the Commission explains in *Pulver,* exclusive Commission jurisdiction has prevailed unless an information service can be characterized as "purely intrastate," or it is practically and economically possible to separate interstate and intrastate components of a jurisdictionally mixed information service without negating federal objectives for the information service component.[37] Neither condition is likely to apply in the case of IP-enabled services. Specifically, almost any IP-enabled service is likely to possess the same characteristics as the FWD service found to be interstate in *Pulver* – (1) the user can typically "initiate and receive on-line communications from anywhere in the world;"[38] and (2) such services are unlikely to be able to determine "the actual physical location of an underlying IP address."[39] Consequently, it would be impossible or impractical to attempt to separately identify interstate and intrastate components of the service. As the

[35] *Inquiry Concerning High-Speed Access* ¶ 38.
[36] 47 C.F.R. § 64.702(a).
[37] *Pulver* ¶ 20.
[38] *Pulver* ¶ 22.
[39] *Pulver* ¶ 22.

Commission points out in the Notice, "[p]ackets routed across a global network with multiple access points defy jurisdictional boundaries."[40]

B. There is No General Title I Jurisdiction Over IP-Enabled Services

While the Commission should find that most IP-enabled services are information services, its suggestion that as a result it has "federal jurisdiction" over those services under Title I of the Communications Act is based on a faulty understanding of its jurisdiction. There is no general Title I jurisdiction over communication-related services. Rather, the Commission's Title I jurisdiction is ancillary – it must be in aid of some express jurisdiction granted elsewhere in the Act. As we show in what follows, the Commission properly does have ancillary jurisdiction in specific instances. But the claim of "general" jurisdiction over information services is insupportable as a matter of law.

1. Ancillary Jurisdiction Generally

To begin, Congress did *not* give the Commission the authority to regulate information services. To the contrary, as the Commission observes at times in the Notice, the Congress adopted a policy that telecommunications services were to be subject to joint federal and state regulation, while information services were not to be regulated at all. It did this by adopting the Commission's own *Computer Inquiry* framework, defining "telecommunications service" and "information service" as distinct services, and subjecting the former, but not the latter, to Commission regulatory authority.[41]

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[40] *Notice* ¶ 4.

[41] *See Stevens Report* ¶ 21 ("Congress intended to maintain a regime in which information service providers are not subject to regulation as common carriers merely because they provide their services 'via telecommunications.'"); H.R. Conf. Rep. No. 104-458 (1996) (Congress creates a "pro-competitive, de-regulatory national policy framework" designed to promote the "deployment of advanced

While the Commission has on occasion indicated to the states that Congress intended information services to be a "no regulation" area, and on that basis preempted state information service regulation,[42] that is a far cry from suggesting that the Commission itself has any affirmative general regulatory power in this area. Although the Commission is no doubt correct that many IP-based services contain an inseverable interstate component, and under the Commission's "inseverability" doctrine are subject to exclusive *federal* jurisdiction,[43] it is not the case that the Congress vested that federal jurisdiction in the Commission. Since Congress has mandated that information services, and IP-based services in particular, are not to be subject to general regulation of any kind – federal or state – the Commission has no more authority "for asserting federal jurisdiction,"[44] over these services than the States. Congress, not the Commission, has mandated that these services be de-regulated, and only Congress, and not the Commission, may reach a contrary conclusion.

The Commission may not invoke Title I to assert jurisdiction in areas in which Congress has not seen fit to allow the Commission to regulate. To begin with, the Commission can only exercise jurisdiction under Title I if its actions fall within the express parameters of that Title. In that regard, the language of Title I has important limits. Thus, in *Motion Picture Ass'n of America, Inc. v. FCC*,[45] the D.C. Circuit invalidated Commission rules requiring "video description." There the Commission had required that broadcasters provide audible description of a TV program's key visual

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telecommunications and information technologies to all Americans"); s*ee also* 47 U.S.C. § 230(b) ("policy of the United States" that the Internet should be "unfettered by Federal or State regulation").
[42] *See Computer II Reconsideration Order* ¶ 83 & n.34.
[43] *Notice* ¶¶ 40-41.
[44] *Notice* ¶ 40.
[45] *Motion Picture Ass'n of America, Inc. v. FCC,* 309 F.3d 796 (2002).

elements to enable the visually impaired to better understand the programs. The D.C. Circuit concluded that Section 1 of the Communications Act, which provides authority to regulate interstate communication by wire, did not authorize these regulations. It explained that while Section 1 aims to ensure an adequate communications system in all geographic areas,[46] it does not permit the Commission to regulate program content even to ensure better access by the visually impaired.[47] This conclusion applies just as much to IP-enabled services as to broadcasting. The Commission has no authority to engage in any content regulation except as expressly provided in the other Titles of the Communications Act.

Even where the Commission's actions would fall within the language of Title I, the Commission's authority under Title I is limited. In the Communications Act, Congress has carefully delineated the Commission's jurisdiction over common carriers, wireless providers, cable companies, and broadcasters. The other Titles of the Communications Act obviously are not intended to be merely limits on some virtually unlimited regulatory authority provided in Title 1.[48] Rather, the Commission's authority under Title I "is restricted to that reasonably ancillary to the effective performance of the Commission's various responsibilities."[49] Thus, in *GTE Service Corp. v. FCC*,[50] the

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[46] *Id*. at 804.
[47] *Id*. at 804-05.
[48] *See California v. FCC*, 905 F.2d 1217, 1240 n.35 (9th Cir. 1990); s*ee also National Ass'n Regultory Utility Commissioners v. FCC*, 533 F.2d 601, 613 & n.77, 617 (D.C. Cir. 1976) ("*NARUC II*") (noting that while § 151 of the Communications Act "does set forth worthy aims toward which the Commission should strive, it has not heretofore been read as a general grant of power to take any action necessary and proper to those ends," and that the "allowance of 'wide latitude' . . . in the exercise of delegated powers is not the equivalent of untrammeled freedom to regulate activities over which the statute fails to confer or explicitly denies") (footnote omitted); *North American Telecom. Ass'n v. FCC*, 772 F.2d 1281, 1292-93 (7th Cir. 1985) (holding that the Act "empowers the Commission to deal with the unforeseen – even if [] that means straying a *little way* beyond the apparent boundaries of the Act – to the extent necessary to regulate effectively those matters already within the boundaries.") (emphasis added).

[49] *Southwestern Cable*, 392 U.S. at 178.

court invalidated Commission rules that prohibited a separate affiliate from selling data processing services to its affiliated telecommunications carriers. The Commission had explained that it promulgated these rules based on concerns with antitrust problems in the data processing market, not "the communications market which Congress has entrusted to its care."[51] The FCC had no authority to promulgate such a regulation.

The case law demonstrates that regulation is reasonably ancillary to the Commission's responsibilities over common carriers only if it (1) protects the Commission's jurisdiction over common carriers; or (2) extends existing statutory requirements to providers of services that are close substitutes for those provided by common carriers.

Specifically, the first set of circumstances under which the Commission may exercise its ancillary jurisdiction is when it is necessary to fulfill a specific statutory obligation under one of the other titles of the Act. Thus, in *Southwestern Cable*, the Court held that Commission regulations of community antenna television ("CATV") that ensured that CATV did not interfere with broadcast service (by dividing available audiences and revenues) were reasonably ancillary to effective performance of its responsibilities for the regulation of broadcasting.[52] The Court explained that the Commission had reasonably concluded that CATV could undermine specific statutory obligations the Commission had with respect to broadcasting if left unregulated.[53] In

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[50] *GTE Service Corp. v. FCC*, 474 F.2d 724, 731 (D.C. Cir. 1973).
[51] *Id*. at 734.
[52] 392 U.S. at 178.
[53] *Id.* at 173-76. *See also United Video, Inc. v. FCC*, 890 F.2d 1173, 1183 (D.C. Cir. 1989) (upholding rules precluding cable companies from retransmitting distant broadcasts of syndicated programs that would have diminished the value of syndicated programs and hencethe diversity of programming).

other words, the FCC regulations were permissible because they protected the Commission's jurisdiction over broadcasting.

The D.C. Circuit used similar reasoning to uphold the Commission's *Computer II* requirements of unbundling of basic and enhanced services (and CPE) and structural separation.[54] The Court explained that the Commission reasonably believed that the separate affiliate requirement was necessary to assure that *Title II communications services* were offered at reasonable rates. With respect to the rules establishing the separation of basic and enhanced services, for example, the court found that ancillary jurisdiction was appropriate because unbundling and structural separation were reasonably "necessary to prevent AT&T from burdening its basic transmission customers with part of the cost of providing competitive enhanced services. This conclusion was based upon detailed findings on AT&T's market power and its ability to underwrite its competitive offerings with profits from its monopoly services." Moreover, the Commission made detailed factual findings showing "the potentially symbiotic relationship" between the non-Title II enhanced services and the Title II transmission services.[55] Similarly, the Court found that it was "reasonable for the Commission to exercise jurisdiction over carrier-provided CPE to ensure that rates for carrier transmission services are not based upon costs associated with the provision of CPE," and that preemption of state regulation of CPE promoted efficient utilization of the interstate telecommunications network.[56]

[54] *Computer and Communications Industry Ass'n v. FCC*, 693 F.2d 198, 213 (D.C. Cir. 1982) ("*CCIA").*
[55] 693 F.2d at 213.
[56] *Id*. at 215.

One final example of the Commission's exercise of protective jurisdiction is provided by the rules at issue in *GTE Service Corp. v. FCC*.[57] These rules limited the ability of communications carriers to provide data processing services. The Court upheld these rules in part because "such activities may substantially affect the efficient provision of reasonably priced communications services."[58] The rules were supported by "the Commission's concern that its regulated carriers continue to provide the public with efficient and economic telephone service."[59]

Second, in addition to using ancillary jurisdiction to fulfill specific statutory purposes pertaining to common carriers or broadcasters, the outer limits of the ancillary jurisdiction doctrine allow the Commission to apply its common carrier or broadcasting rules to new services that are close substitutes for those it has express authority to regulate, at least when it does so to foster some express statutory purpose. Thus, in *United States v. Midwest Video Corp.*,[60] a divided Supreme Court upheld an FCC order requiring cable operators with 3500 or more subscribers to facilitate and transmit locally originated products even though Congress had not yet directed the FCC to regulate cable. A four Justice plurality said that the powers exercised were reasonably ancillary to jurisdiction over broadcasting, as the effect of the regulation was "to assure that in the retransmission of broadcast signals viewers are provided suitably diversified programming."[61] The plurality interpreted the Supreme Court's decision in *Southwestern Cable* to sustain an "authority to regulate CATV with a view not merely to protect but to promote the objectives for which the Commission had been assigned jurisdiction over

[57] 474 F.2d at 731.
[58] *Id*. at 731.
[59] *Id*. at 733.
[60] 406 U.S. 649 (1972) ("*Midwest Video I*).
[61] *Id.* at 669.

broadcasting."[62] Chief Justice Burger, who cast the deciding vote, emphasized that the rules were within the FCC's jurisdiction because "CATV is dependent totally on broadcast signals and is a significant link in the system as a whole."[63] But he noted that the FCC's rule "strain[ed] the outer limits of its jurisdiction."[64] Thus, the decision in *Midwest Video I* holds that pushing ancillary jurisdiction to its limits the FCC can regulate a market significantly linked to one over which the FCC has explicit authority if it does so to foster an explicit statutory purpose.

The Supreme Court's subsequent decision in *FCC v. Midwest Video Corp.*[65] interpreted *Midwest Video I* in just such a manner. It explained that the FCC's rule in *Midwest Video I* was within its ancillary jurisdiction only because "the Commission had endeavored to promote long-established goals of broadcasting regulation," with respect to cable operators who "had become enmeshed in the field of television broadcasting," and who had assumed a role "comparable to that fulfilled by television broadcasters."[66] Similarly, the D.C. Circuit explained that *Midwest Video I* had upheld the regulation at issue in part "because locally originated programs are indistinguishable from network programs when they arrive on the television receiving set in the home" and are "directly competitive with the services which [the FCC] already regulated."[67] Thus, the courts in *Midwest Video II* and *NARUC II* established the proposition that the FCC can exercise its ancillary jurisdiction to promote express statutory purposes with respect to services

[62] 406 U.S. at 667.
[63] *Id.* at 675 (Berger, CJ, concurring).
[64] *Id*. at 676.
[65] *FCC v. Midwest Video Corp*, 440 U.S. 689, 707 (1979) ("*Midwest Video II*").
[66] *Id.* at 700, 707.
[67] *NARUC II*, 533 F.2d at 616.

"enmeshed in," "comparable to," "essentially indistinguishable from" and "directly competitive with" services in the market over which it has express authority.

Where FCC rules do not fit these narrow conditions, however, and where they are not reasonably necessary to protect the FCC's express authority, courts have not hesitated to strike them down. In *Midwest Video II* itself, the Supreme Court held the FCC lacked authority to compel cable systems to make available public access channels. It found that the FCC rules would have converted cable broadcasters into common carriers, an authority the Court concluded needed to come from Congress. Given that even broadcasters could not be treated as common carriers under the Act, the FCC could not claim to be promoting broadcast objectives when it imposed common carrier obligations on cable companies.[68]

Similarly, in *NARUC II*, the appellate court rejected the Commission's claim that its preemption of state and local regulations concerning two-way, non-video communications over cable was reasonably ancillary to its jurisdiction over broadcasting services. The FCC had asserted jurisdiction over cable generally and argued that the optimum development of cable would only be possible if it was subject to exclusive federal regulation, rather than permitting any state regulation. The court rejected this broad assertion of authority, explaining that it had "great difficulty finding any . . . broadcast purpose which is served by the Commission's attempted pre-emption."[69] It found that the Commission's "pre-emption [which would not increase the mix of available cable viewing choices] [did] not directly affect transmission in any medium

[68] *Id.* at 706-08.
[69] *Id.* at 615.

which is of direct concern under the Commission's power over broadcasting."[70] Rather, "the point-to-point communications via access cables, which involve one computer talking to another or a citizen calling his city council, have no relationship whatever to entertainment programs by a national network which are now being sent by cable." *Id.*

In sum then, the Commission's jurisdiction to regulate a service not within the scope of Titles II through VI is limited. Such regulation is permissible only if necessary to protect the FCC's jurisdiction over services that fall within those other titles, or if it extends statutory requirements to a service that is a close substitute for a service regulated under those titles.

2. Ancillary Jurisdiction and Information Services

These limiting principles apply with especial force to the regulation of information services, where the Congress has mandated that as a general matter there is to be no regulation. Unlike cable television when the Commission first exercised its ancillary jurisdiction, information services were not new services that Congress did not have the opportunity to consider when it amended the Communications Act in 1996. To the contrary, in the Telecommunications Act of 1996, Congress codified the Commission's distinction between basic and enhanced services, defining telecommunications services and information services and prescribing regulations only for the former. Moreover, in section 230, Congress made explicit its view that the Internet should remain free from regulation, explaining that federal policy is "to preserve the vibrant and competitive free market that presently exists for the Internet and other interactive computer services, unfettered by Federal or State regulation."

[70] *Id.* at 615.

Courts have viewed such evidence of Congressional intent as critical in assessing the scope of the Commission's ancillary jurisdiction. Thus, in *Southwestern Cable*, the Court upheld the Commission's regulation of CATV in part because the Act makes room for regulation of new technologies – technologies Congress has not considered.[71] In contrast, in *Midwest Video II*, the Court found that Congress had not intended broadcasters to be subject to common carrier regulation, and thus the Commission could not use its ancillary jurisdiction over broadcasting as a justification to impose common carrier regulation on CATV.[72] Finally, in its recent decision invalidating video description rules, the D.C. Circuit suggested that Congress' express grant of authority in Section 713[73] for Congress to issue a *report* on video description implied that Congress did not want the Commission to have immediate authority to issue regulations *requiring* video description.[74] In sum, Congress' expressed intent to limit regulation of the IP-enabled services must inform the limits of the Commission's ancillary jurisdiction.

Any attempt broadly to regulate IP-enabled services would clearly cross those limits. Regulating the IP-enabled services generally obviously is not necessary to protect the Commission's jurisdiction over Title II services. This is not a case where, for example, failure to impose tariffing requirements on providers of IP-enabled services would prevent reasonable regulation of prices for telecommunications services. Nor are most IP-enabled services "essentially indistinguishable from" and "directly competitive with" traditional telecommunications services. The fact that customers may on occasion use e-mail or even voice communication during Internet gaming instead of traditional

[71] 392 U.S. at 172.
[72] 440 U.S. at 706-08.
[73] 47 U.S.C. § 613.
[74] *Motion Picture Ass'n*, 309 F.3d at 801-02.

telephony does not make these services a substitute for telephony in the mind of most customers. They do not have the relationship to common carriage that CATV services had to broadcasting in which CATV was retransmitting broadcast programs and thus was effectively indistinguishable from it. Finally, as indicated, Congress has considered this very question and concluded that information services, and Internet-based services in particular, should not be regulated.

However, some IP-enabled voice applications may potentially be viewed as a substitute for traditional common carrier voice services, and narrowly focused regulation to advance an express purpose of Title II in those cases could be an appropriate exercise of the Commission's ancillary jurisdiction. Specifically, in instances where customers are assigned a number on the North American numbering plan so that customers using ordinary telephones can make calls to users of the voice application, and where the service is sold as and understood to be a substitute for POTS service, it may reasonable to conclude that the voice application is a close enough competitor to telephone service that the Commission can assert its ancillary jurisdiction to fulfill an express statutory purposes of Title II.

An example of a potentially lawful use of the Commission's ancillary jurisdiction would be to adjust E911 requirements to be compatible with, and take advantage of, IP technology, and then extend those adjusted requirements to certain providers of voice applications. Section 251(e)(3) and Section 615 of the Act have the broad purpose of creating an emergency telephone number to ensure the widespread availability of E911 for people making "telephone calls." To the extent that some voice applications have begun to compete directly with traditional telephone service, so that users of those voice

applications may use those applications and not traditional telephone service, the Commission may have the authority to impose E911 requirements.[75] Under these circumstances, implementation of the 911 statute would arguably "be thwarted" absent extension of E911 requirements to IP-based voice applications.[76]

That is not to say, however, that the Commission has ancillary jurisdiction to apply E911 requirements to all IP-enabled services even if they are not substitutes for traditional telephone service. The Commission would not have authority to impose E911 requirements on electronic gaming services, or instant message services, for example, even if they make use of voice transmission. And even with respect to IP-enabled voice applications, many are not substitutes for POTS services and are not within the Commission's jurisdiction. Finally, even when the Commission has the authority to impose E911 requirements, that does not mean that it would be good public policy for it to do so at a particular time or in a particular manner.

V. SPECIFIC REGULATORY REQUIREMENTS AND BENEFITS

A. 911

1. Scope of Commission authority

The *Wireless Communications and Public Safety Act of 1999* (*911 Act*), codified at 47 U.S.C. §§ 222, 251(e), directed the Commission to apply 911 as the universal emergency telephone number for both wireline and wireless telephone service. The *911 Act* gives the FCC direct authority to regulate only telecommunications service providers. However, the Commission has suggested the possibility of extending 911 regulations to

[75] *See NARUC II*, 533 F.3d at 616 (explaining that the Court in *Midwest I* had upheld the regulation at issue in part "because locally originated programs are indistinguishable from network programs when they arrive on the television receiving set in the home" and were "directly competitive with the services which it already regulated.").
[76] *Access to Telecommunications Order* ¶ 100.

new services that are not clearly telecommunications services when those services are close commercial substitutes for a telecommunications service, i.e., when the service provides two-way switched voice service that interconnected with the PSTN and customers using the services reasonably expected to have access to E911 because the service was such a close substitute for telecommunication service.[77]

Thus, in the *E911 Scope Order*, the Commission declined to extend its 911 jurisdiction in two instances because the services it was considering did not provide a commercial wireless service that connects to the PSTN.[78] In both cases the Commission found it relevant that consumers did not expect E911 access, nor did the services in question constitute close commercial substitutes for telecommunications service. By contrast, the Commission did apply E911 requirements where the services were close commercial substitutes, interconnected with the PSTN, and where customers expected to have access to E911 service.[79]

Applying the reasoning in the *E911 Scope Order*, for the reasons indicted above, the Commission has ancillary jurisdiction over a subset of IP-based voice applications. Notably, some IP-based voice services that hold themselves out as substitutes for POTS services, that assign NANP numbers to their customers, and that are interconnected with the public switched telephone network, may be viewed as close substitutes for POTS services and so properly are subject to the Commission's ancillary jurisdiction. Other IP-based voice applications, and IP-enabled services generally, clearly would not be subject to regulation on this basis.

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[77] *E911 Scope Order* ¶¶ 13-15, 18.
[78] *E911 Scope Order* ¶¶ 70, 106.
[79] Id. ¶ 96.

2. The Commission should not adopt 911 regulations for IP-enabled services at this time.

Assuming the Commission has jurisdiction to impose E911 regulation on some providers of IP-enabled voice applications, the question remains whether it should exercise that jurisdiction now. There are multiple reasons why it should not.

As an initial matter, providers of voice applications, in particular so-called "nomadic" applications, are not currently able to comply with the Commission's E911 requirements to automatically route 911 calls to the appropriate PSAP, to automatically provide call-back numbers, and to automatically provide location information.[80] This is so because, among other reasons, an IP address is not fixed to a specific geographic location in the way that a wireline phone number is, and wireline E911 systems all depend on the connection between a phone number and a fixed address.

The principal reason not to regulate an E911 solution for covered providers of IP-enabled voice applications at this time is that alternate standards and services for IP-based emergency services are just now being developed. Voice application providers, vendors, emergency service organizations, standards bodies, and independent contributors, are in the process of specifying the interfaces, standards and protocols that would make E911 possible over end-to-end IP networks. NENA estimates that by the end of this year there will be broad consensus on the standards needed for both fixed and nomadic users of IP-based voice application services to be able to access E911 service.[81]

Until technical development work has been completed, the Commission should refrain from mandating date-specific compliance with its E911 requirements for voice

[80] 47 U.S.C. § 20.18.

[81] This refers to what is known as an "I2" solution, which continues to rely on accessing 911 trunks to reach the PSAP. Implementing an I2 solution may require several years after I2 standards have been agreed upon. Direct, robust IP access to emergency service may take longer still.

application providers, but should continue to monitor the cooperative efforts to find both interim and long-term solutions. Establishing E911 mandates before technical solutions are agreed upon and visible will only cause unnecessary expense, confusion and regulatory uncertainty – a prescription for delaying not only a permanent solution, but the development of voice applications in general.

Not only are the standards not complete, but there is every reason to believe that the market itself, without the need for regulation, will lead providers of IP-based voice applications to offer emergency services to their customers while this standards setting process is underway. For example, an MCI IP-based voice application for enterprise customers, named "Advantage," automatically routes 911 calls for customers using their phones at their principal place of business to the appropriate PSAP via 911 trunks, automatically provides PSAP personnel the billing telephone number, main service address, and can provide building, or even suite, location information. In addition, there are also third party vendors that provide similar 911 solutions to providers of voice applications.[82]

Furthermore, premature regulation may undermine innovation in the provision of emergency services. One of the key advantages of IP technology is that it makes possible a far richer suite of emergency services. For example, it will be possible to access emergency services from any IP-capable device. Access could be provided via voice, text, video and any combination of thereof. This will allow for additional data to be provided that would enable emergency responders to more accurately assess emergency

[82] See e.g., Intrado's web site: http://www.intrado.com/assets/documents/VoIP%20with%20 background.pdf.

needs and respond accordingly. It will also allow persons with disabilities to more accurately convey their emergency condition.

Additionally, notification of emergencies could be simultaneously sent to assigned numbers and devices, allowing relatives and loved ones to immediately know of an emergency. Emergency responders could conference in medical personnel, access medical records, and again respond more quickly and more appropriately. Emergency responders could also broadcast messages to IP devices and provide early warning regarding natural and other disasters.

Finally, end-to-end IP access to emergency service providers could result in substantial reductions in the cost of accessing emergency services. For example, an end-to-end IP system might have location information directly encoded in the call set-up, substantially reduce costs by eliminating the need for special emergency trunks to each PSAP from every selective router tandem. This would greatly reduce PSAPs' costs.

3. Short Term Steps

While it would be premature to adopt comprehensive E911 regulation at this time, there are certain steps that the Commission should take. First, the Commission could make clear that any emergency service regulation of certain providers of voice applications, given the nature of IP technology, would have to be national, and not local. While states have important experience and information that needs to be shared in devising emergency services solutions for providers of IP-based voice applications, the Commission should make clear that unless and until the Commission decides that it should regulate in this area, there should be no other regulation of voice application providers.

Second, many E911 solutions require access to incumbent LEC selective routing databases.[83] Consequently, the Commission should ensure that voice application providers can obtain non-discriminatory access to incumbent LEC selective routers and emergency trunks connected to PSAPs in order to facilitate the rational provision of interim 911 solutions among carriers. By taking this regulatory action, aimed at opening up a bottleneck at the network layer, the Commission would allow voice application providers to obtain access to selective routing, allow them to replicate 911 to the greatest extent possible, and would also provide PSAPs the fees to compensate them for the use of emergency trunks and emergency responder service.

B. Disability Access

1. The rules established in the Commission's *Disability Access Order* may not be directly applied to any IP-enabled services

Congress included section 255 in the Telecommunications Act of 1996 in order to ensure that persons with disabilities have access to telecommunications services and telecommunications equipment. As the Commission has stated, "Telecommunications has become such a common tool that its use is essential for participation in nearly all aspects of our society…Americans rely on telecommunications for routine daily activities…."[84]

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[83] Prepared Statement of Jeffrey Citron, Vonage Holdings Corporation Chairman And Chief Executive Officer Before The Senate Committee On Commerce, Science And Transportation, February 24, 2004.

[84] *Disability Access Order* ¶ 4. Section 255 requires a manufacturer of telecommunications network equipment or telecommunications customer premises equipment (CPE) to ensure that the equipment is designed to be accessible to persons with disabilities, if readily achievable. It also requires telecommunications service providers to ensure their services are accessible to persons with disabilities, if readily achievable. If accessibility is not readily achievable, section 255 requires both manufacturers and telecommunications service providers to ensure telecommunications services and CPE are compatible with existing peripheral devices and specialized CPE used by individuals with disabilities to achieve access, such as teletypewriters ("TTYs"), if readily achievable. Section 256 authorizes the Commission to participate in the efforts of bodies that set standards for telecommunications network interconnection in order to promote interoperability of network capabilities and the use of those network capabilities by

In the case of non-telecommunications services, such as voice-mail and interactive voice response (IVR) systems, the Commission has found that it does not have jurisdiction to apply Sections 255, 256, and 251(a)(2), except through the use of its ancillary jurisdiction.[85] Moreover, the Commission has recognized that it is required to limit its application of ancillary jurisdiction to information services to "only those services we find essential to making telecommunications services accessible."[86] Finally, even though the Commission included in its disability access requirements the obligation to offer stand-alone software needed to make CPE function for the disabled, it limited this requirement to software needed to make *telecommunications* CPE function.[87] Consequently, the rules established in the *Disability Access Order* apply to telecommunications service providers and providers of telecommunications CPE and telecommunications network equipment, and do not directly apply to IP-enabled services.[88]

In the *Notice*, the Commission asks how its decision to reimburse non-telecommunications services from the Interstate Relay Fund, which is governed by Section 225, might apply to the application of sections 255, 256, and 251(a)(2) to IP-enabled services that might also be categorized as non-telecommunications services.[89] The Commission's decision to reimburse IP-enabled relay services from the Interstate

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persons with disabilities. Finally, section 251(a)(2) states that telecommunications carriers may not install network features that interfere with existing peripheral devices, such as audio amplifiers; or specialized CPE used by persons with disabilities, such as TTY devices. Nor may they install network features that are incompatible with standards designed to promote accessibility to telecommunications networks for persons with disabilities.

[85] *Disability Access Order* ¶ 78. ("We conclude…that we may not reinterpret the definition of telecommunications services, either for purposes of section 255 only or for all Title II regulation.").

[86] *Id.* ¶ 107.

[87] *Id.* ¶ 85 ("[t]his type of software … would be CPE if it is integral to the origination, routing, or termination [of] telecommunications.").

[88] *Notice* ¶ 58.

[89] *Notice* ¶ 59.

Relay fund does not provide a basis for applying sections 255, 256, and 251(a)(2) to IP-enabled services. As discussed above, the Commission has viewed the disability access provisions contained in these sections as being explicitly limited to providers of telecommunications equipment and services while it has not viewed relay service as being limited to telecommunications. ("For this very reason, TRS cannot be considered 'telecommunications' under the definition in section 3(43)…").[90] Therefore, the Commission may not apply the definition of relay service to that of telecommunications services simply because both sections and 255, 256, and 251(a)(2) share the goal of making services available to persons with disabilities.

In order for the Commission to apply its ancillary jurisdiction to IP-based voice applications, the service must instead be a close substitute for the telecommunications services subject to the federal disability access requirements. As is discussed above in section V.A, there may be a subset of IP-based voice applications that are offered as substitutes for POTS services, interconnect with the PSTN, and offer consumers telephone numbers obtained pursuant to the NANP, which may be within the FCC's ancillary jurisdiction. On the other hand, most IP-enabled services, including many voice applications, would not meet these criteria and so are not within the Commission's ancillary jurisdiction.

2. Possible Regulatory Steps

For those IP-enabled services that are within the Commission's ancillary jurisdiction, the Commission might impose the following limited regulatory requirements. First, to facilitate market-based developments, it might require regulated voice application providers to disclose accessibility features of IP-based voice service

[90] *Improved TRS Order* ¶ 81.

and CPE. The Commission should also consider participation in standards bodies to ensure interoperability of networks and devices.[91]

On the other hand, even when the Commission has jurisdiction, there is no need for extensive regulation of disability access for IP-enabled services as a matter of policy. That is so in large measure because of the technical characteristics of IP-enabled services. These services are built upon standards-based, non-proprietary, protocols. These features of IP drive intelligence out of the network and into end user devices that can be modified via software additions and upgrades. Consequently, new services can be developed with minimal investment compared to traditional telephone services, and developers are able to realize a return by reaching smaller markets. This will generally increase competition, and permit certain IP service and CPE providers to profitably specialize in serving persons with disabilities.

Persons with disabilities have already benefited from similar developments in the computer accessory and software markets. These industries have been the source of products and services that have increased communications accessibility for the disabled. The computer industry has developed a wide range of devices and programs that have made computer use accessible, including screen readers that can translate email, web pages, word processing documents, and spreadsheets into voice output for the blind and vision-impaired; augmentative alternative communication devices that can translate typed text into voice for speech-impaired persons or that translate symbols into text to assist cognitively-impaired persons; cueing and planning programs and devices to assist persons with memory or attention deficits; a variety of alternative computer mice and on-screen keyboards that make computer use possible for persons with a variety of physical

[91] *See* 47 U.S.C. § 256(b)(2)(B).

disabilities; and speech recognition software that allows persons with physical and cognitive disabilities to access computer and other electronic devices.[92]

Voice applications hold the prospect of similar functionality for the disabled. For example, IP-based applications promise to deliver integrated voice, text, and video that will allow deaf persons to sign and lip read; persons with hearing impairments to lip read, view text and speak; and blind persons to speak and receive text via a Braille display. Text over IP (ToIP) will allow real time text conversations. Text conversations will allow instantaneous back and forth communication, and a natural flow of conversation. A blind person may use a SIP client to engage in a text conversation with a speech-text translation program; and a hearing disabled person will be able to invite a text conversation. In a campus or enterprise setting, hearing persons will be able to leave text messages for TTY users to retrieve, and blind persons can have access to "audio Caller ID."[93]

There is every reason to believe that the market will produce these enhancements without the need of any regulatory interference.

C. Intercarrier Compensation

The Commission seeks comment as to the appropriate compensation mechanism to replace the existing hodgepodge of intercarrier compensation regimes. It also asks, under what authority the Commission could establish a compensation regime for IP-enabled services.[94] The Commission states that it believes, as a policy matter, that any service provider that uses the PSTN should be subject to similar compensation

[92] See, e.g., Ability Hub Web site for just some of the assistive devices available, http://www.abilityhub.com/index.htm.
[93] Cisco IP Communications System Improves Productivity for Disabled at Washington School for the Deaf and U.S. Department of Education, newsroom/cisco.com/dlls/2004/prod_0209c.html.
[94] *NPRM* ¶¶ 61-62.

obligations, irrespective of whether the traffic originates or terminates on the PSTN, on an IP network, or on a cable network.[95] The Commission further suggests that all traffic that traverses the PSTN should be subject to switched access charges, regardless of whether the traffic is classified as an "information service" or a "telecommunications service."[96]

MCI disagrees. The Commission should not extend the current bloated and irrational access charge system to voice applications or to any other nascent IP-based services. Instead, the Commission needs to start from scratch. Categories like "local" and "long-distance," or "voice" and "data," are regulatory artifacts. Any rules that draw such artificial distinctions (or redraws them in an effort to include some subset of IP-enabled services) will only perpetuate regulatory distortions that the Commission should be seeking to eliminate. The Commission instead should replace the current intercarrier compensation system with one that will allow competition to develop in a rational, cost-causative, technologically neutral, and jurisdictionally-agnostic manner.

In the *Intercarrier Compensation NPRM*,[97] the Commission concluded that the carrier access charge regime is not cost-based, as its charges do not reflect the way in which cost are incurred, or the true amount of those costs. Carrier access charges are a dubious legacy of the AT&T monopoly, where local retail rates were subsidized by long distance services. Unfortunately, much of this subsidy flow remains, especially in intrastate carrier access rates. This implicit subsidy is inconsistent with a competitive marketplace, economically inefficient, and will continue to create opportunities for regulatory arbitrage.

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[95] *Id.* ¶ 61.
[96] *Id.*
[97] *Intercarrier Compensation NPRM* ¶ 7.

The current system treats different types of carriers and different types of services disparately, depending in part on the geographic jurisdiction (local, local toll, intrastate, interstate) and service provider (IXC, ILEC, CLEC, CMRS, ISP),[98] even though there may be no significant differences in the costs among carriers[99] or technical functionality. Because the economic cost of terminating any of this traffic is low, and virtually the same in all instances, these enormous differences in rates are irrational and uneconomic. The bundling of "all-distance" services (local, long-distance, wireless, data, Internet) further emphasizes the illogic of applying disparate rates based on outmoded definitions. The harms caused by the intercarrier compensation system are exacerbated further by the fact that the BOCs are now in the interLATA market, and are able to levy above-cost intercarrier compensation charges on their competitors while enjoying cost-based access themselves.[100]

The arrival of IP-based applications only further exposes the inherent flaws in the intercarrier compensation regime. Distinctions between interstate and intrastate (as well as federal and state jurisdiction) have little meaning in an IP-centric world. IP voice

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[98] For the purposes of general comparison, a snapshot of the sizable range of disparate intercarrier rates follows:

- Large ILEC switched access (interstate): 0.6 cents/min.
- Small ILEC switched access (interstate): 2.6 cents/min.
- Large ILEC switched access (intrastate): 0.6 cents/min.
- Small ILEC switched access (interstate): 2.5 cents/min.
- CLEC switched access (interstate): 1.8 cents/min.
- Rural CLEC switched access (interstate): 2.4 cents/mi.
- CLEC switched access (intrastate): 3.0 cents/min.
- CMRS switched access: zero (for now)
- Cable telephony access: same as CLEC rates
- Reciprocal compensation (non-ISP traffic): 0.2 cents/min.
- Reciprocal compensation (ISP traffic): 0.1 cents/min.
- ISP dial-up (local business lines): $40.00/month

Rates as per single end (originating or terminating), as of June 9, 2003.

[99] For example, MCI estimates that the intrastate access charges assessed by larger ILECs exceed the actual costs by at least $4 billion.

[100] *See, e.g., Access Charge Reform Order* ¶¶ 344-345.

applications thus put added stress on the system, but the correct response is to reform the system, not to try to devise additional exceptions, inclusions and qualifications to a structure that does not merit saving.

For all of these reasons, the Commission has consistently understood that it would be a mistake to impose the burdens of the intercarrier compensation regime on information services providers, and it would be just as much of a mistake to impose those burdens on the IP-based services today.[101]

The Commission should abandon the current system and replace it with one that is consonant with a layers-based approach. Specifically, a layers-based approach would be consistent with the efforts already underway to correct anomalies in the current regulatory scheme by moving to a bill-and-keep system to cover virtually all intercarrier compensation arrangements, without regard to outmoded traditional distinctions based on the jurisdictional nature of the traffic or the technology being used.

Bill-and-keep should be applicable to all forms of switched traffic on a default basis, where at least one party is a regulated carrier. Consequently, each carrier would be expected to recover its network access costs from its own end user customers, not from other connecting carriers. Carriers would be compensated by their subscribers for the use of their networks, regardless of the type of physical network employed (*e.g.,* coaxial cable, copper, or fiber), the type of service being provided over the network (*e.g.,* voice, video, or data), or the type of carrier involved (*e.g.,* IXC, ILEC, CLEC, or wireless).

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[101] *See, e.g., IP-Enabled Services NPRM*, Statement of Chairman Michael K. Powell.

[102] See generally, Whitt, A HORIZONTAL LEAP FORWARD; Whitt, ADAPTING FCC POLICYMAKING TO THE NETWORK LAYERS MODEL: A ROADMAP FOR FCC ACTION," Richard S. Whitt, MCI, March 2004; Whitt, CODIFYING THE NETWORK LAYERS MODEL, MCI'S PROPOSAL FOR NEW FEDERAL LEGISLATION REFORMING U.S. COMMUNICATIONS LAW," Richard S. Whitt, MCI, March 2004.

Just as in the current system, unregulated providers, such as information service providers that merely make use of underlying network facilities, should not be required to pay intercarrier compensation. As the Commission recognized in the *Access Charge Reform Order*, "the access charge system was designed for basic voice telephony provided over a circuit switched network, and even when stripped of its current inefficiencies it may not be the most appropriate pricing structure for Internet access and other information services."[103] Consequently, the Commission historically has treated information service providers as end users for the purposes of applying access charges.[104]

Because they are customers of telecommunications carriers, and not carriers themselves, providers of IP-enabled services should remain eligible to use flat-rated business lines, procured from LEC state tariffs, just like any other business end user, for their connections to the LEC central offices and the PSTN.

With respect to jurisdictional issues, application of the layers principle would enable the creation of a single, federal, intercarrier compensation policy that applies to all communications traffic and networks and extends to the IP world as well. There should be no state role in regulating intercarrier interconnection/compensation rates for facilities carrying IP-based applications.

D. Universal Service

The Commission asks what the Universal Service Fund contribution obligations should be for providers of IP-enabled services.[105] MCI believes that all providers of broadband access service should contribute to the Universal Service Fund, but that no

[103] *Access Charge Reform Order* ¶ 344.
[104] *Notice* ¶ 61, n.179.
[105] *Notice* ¶ 63.

contributions should be sought from providers who are not telecommunications carriers. In other words, consistent with layers principles, contributions should be assessed at only the physical layer of the network on top of which broadband-based applications and services ride, but not on the applications layer.

Concomitantly, support would be provided only for the physical layer, but not the applications and content layers. The purpose of universal service is to build networks and provide service to rural and under-served areas. It is therefore unnecessary to support IP-enabled services, including applications and content, which are not sensitive to distance and are in no need of subsidy.[106]

The Commission asks whether the advent of IP-enabled services weighs in favor of any specific contribution methodology reforms.[107] MCI urges the Commission to adopt a connections or telephone-number based contribution methodology. A connections or telephone number-based methodology is consistent with the layers approach. With the increase of bundled-service offerings that include services subject to varying regulatory treatment and the increase of IP-based products, a revenues-based contribution is nearly impossible to apply in a rational manner. A connections-based contribution mechanism, on the other hand, is consistent with the bundled environment and the ways that consumers access and utilize networks. In addition, a connections-based contribution system would associate universal service payments with physical facilities, rather than the provision of service, which advances the goal of universal

[106] Because subsidy of applications providers is unnecessary, the issue of whether the Commission has jurisdiction to create such a subsidy system under §254(c)(1), *see NPRM* ¶ 65, is one the Commission need not reach.
[107] *NPRM* ¶ 64.

service in that most of the expense in high-cost areas stems from providing access to facilities, not services.

E. International Settlement Rates

The Commission asks about the international implications raised by IP-enabled services. Specifically, the Commission seeks comment on the potential impact on international settlement rates and the ability of consumers to take their IP CPE overseas and continue to make and receive calls.[108]

Regulations addressing IP voice applications vary widely throughout the world. Many countries do not specifically regulate these IP-enabled services, while some explicitly allow them. Many regulators and traditional carriers, especially those in the developing world, are concerned that "IP-telephony" will lead to lost revenue by avoiding above-cost international settlement rates. In several of these countries, therefore, IP-telephony is considered illegal.

The Commission has recognized that IP-telephony serves the public interest by placing significant downward pressure on international settlement rates and consumer prices.[109] On March 11, 2004 the Commission adopted a Report and Order in its *International Settlements Policy Reform* proceeding finding that there has been increasing competition on many U.S.-international routes accompanied by lower settlement rates and calling prices to U.S. customers.[110] The Commission also found that there exists the potential for further development of competition as a result of emerging means of routing international traffic that do not involve the traditional carrier settlement process.

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[108] *NPRM* ¶ 76.
[109] *Foreign Participants Order* ¶ 16.
[110] *International Settlements Policy Reform and International Settlement Rates*, IB Docket No. 02-324 , FCC No. 04-53 (FCC rel. Mar. 30, 2004).

International organizations have correctly concluded that IP-telephony is something to be embraced, rather than resisted, by traditional voice carriers. An ITU Telecommunication Standardization Sector (ITU-T) report on IP telephony, published in May 2000, advises operators in developing countries whose PSTN terminations are being bypassed to "embrace IP telephony, and bear the consequences of reduced per-minute revenues...rather than risk missing the opportunity to develop revenues in future growth areas."[111]

An Organisation for Economic Co-operation and Development (OECD) paper expands on this point by noting that, while IP-based voice may offer a lower cost-alternative to traditional voice telephony, integrated IP services are also likely to create new markets for traditional telephony carriers. [112] The OECD concludes that, "[t]he potential to successfully exploit these opportunities will be best utilized by those traditional carriers that are most able to embrace the need to form new alliances and partnerships needed to bring these services to businesses and consumers."[113]

Moreover, the Commission need not be concerned about the use of customers' IP CPE in foreign markets. While attempts to enforce regulations applicable to IP-based services may be difficult, it is always incumbent upon the CPE vendors to comply with the laws and regulations of individual countries.

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[111] Final Report of the Secretary-General on IP Telephony, International Telecommunications Union, World Telecommunication Policy Forum (WTPF 2001), Geneva, 7-9 March 2001.
[112] "Trends in IP Technology: Their Impact on the Traditional Telephony Carrier World," Organisation for Economic Co-operation and Development, Working Party on Telecommunications and Information Services Policies, DSTI/CCP/TISP(2001) 10/Final, Mar. 20, 2002, at 4.
[113] *Id.*

VI. CONCLUSION

For the foregoing reasons, the Commission should adopt a layers approach to IP-enabled services. Pursuant to this approach, the Commission should continue its common carrier regulation of broadband transmission networks, and for the most part should eschew regulation of applications that ride over those transmission networks. In the few instances in which regulation of IP-based voice applications is lawful and appropriate, the Commission should regulate to the least extent necessary, as these applications operate in competitive and newly developing markets.

Respectfully submitted,

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